Question Number	Scheme	Marks
3(a)	A **list** of all patients	B1
		(1)
(b)	Individual patients	B1
		(1)
(c)	Advantage: e.g. Less time consuming to obtain data and analysis it/less expensive	B1
	Disadvantage: e.g. May not be representative of the entire population	B1
		(2)
(d)(i)	$\mathrm{B}(3000, 0.003) \Rightarrow \mathrm{Po}(9)$	M1
	$\left[\mathrm{P}(X < 4) = \mathrm{P}(X \leqslant 3\right] = 0.0212$	A1
(ii)	$\left[\mathrm{P}(7 < X \leqslant 10)\right] = \mathrm{P}(X \leqslant 10) - \mathrm{P}(X \leqslant 7)$ $=0.7060 - 0.3239$	M1
	$= 0.3821$ awrt 0.382	A1
		(4)
(e)	[*n* is large and] *p* is small	B1
		(1)
	Notes	**Total 9**

(a)	**B1**	Idea of a list e.g. database/register of all patients. All can be implied but do not allow a partial list e.g. A list of 100 patients. Do not allow a list of patient's opinions
(b)	**B1**	Allow patient. Do not allow a patient's opinion
(c)	**B1**	A correct advantage of taking a sample. If not labelled, assume the response refers to a sample (rather than a census)
	B1	A correct disadvantage of taking a sample. If not labelled, assume the response refers to a sample (rather than a census). Condone e.g. 'may not be accurate'
(d)(i)	**M1**	For writing or using Po(9)
	A1	awrt 0.0212 (this implies M1A1) Note: exact binomial gives 0.02109… and scores M0A0
(ii)	**M1**	For writing or using $\mathrm{P}(X \leqslant 10) - \mathrm{P}(X \leqslant 7)$ or $\mathrm{P}(X = 8) + \mathrm{P}(X = 9) + \mathrm{P}(X = 10)$
	A1	awrt 0.382 (this implies M1A1 and this also implies the M1 mark from part (i)) Note: exact binomial gives 0.38262… and scores M1 (for adding correct probabilities) A0
(e)	**B1**	A correct explanation. Allow mean $\approx$ variance if $np = 9$ and $npq = 8.97(3)$ are found